WHAT IS CLAIMED IS:

1. A method for controlling magnetostriction in a free layer of a magnetic memory device, comprising:

forming a pinned layer;

forming a separation layer over the pinned layer;

forming a first free layer having a first thickness; and

forming a second free layer having a second thickness, the ratio of the first thickness and second thickness being selected to provide a desired magnetostriction.

2. The method of claim 1, wherein the first free layer comprises CoFe and the second free layer comprises NiFe.

3. The method of claim 1, wherein the separation layer is a conductor layer.

4. The method of claim 1, wherein the separation layer is an insulation layer.

5. A magnetic sensor, comprising:

a pinned layer;

a separation layer formed over the pinned layer;

a first free layer having a first thickness formed over the separation layer; and

a second free layer having a second thickness formed over the first free layer, wherein the ratio of the first thickness and second thickness is selected to provide a desired magnetostriction.

6. The magnetic sensor of claim 5, wherein the first free layer comprises CoFe and the second free layer comprises NiFe.

7. The magnetic sensor of claim 5, wherein the separation layer is a conductor layer.

8. The magnetic sensor of claim 5, wherein the separation layer is an insulation layer.

9. A magnetic tunnel junction sensor, comprising:

a magnetic tunnel junction device comprising:

a pinned layer;

an insulation layer formed over the pinned layer;

a first free layer having a first thickness formed over the insulation layer; and

a second free layer having a second thickness formed over the first free layer, wherein the ratio of the first thickness and second thickness is selected to provide a desired magnetostriction;

a current source coupled to the magnetic tunnel junction device; and

a magnetoresistance detector, coupled to the magnetic tunnel junction device, for detecting an electrical resistance through the magnetic tunnel junction device based on magnetic orientations of the first and the second free layers.

10. The magnetic tunnel junction sensor of claim 9, wherein the first free layer comprises CoFe and the second free layer comprises NiFe.

11. A magnetic storage system, comprising:

a movable magnetic recording medium;

a magnetic sensor for detecting magnetic signals on the moveable recording medium, comprising:

a pinned layer;

a separation layer formed over the pinned layer;

a first free layer having a first thickness formed over the separation layer; and

a second free layer having a second thickness formed over the first free layer, wherein the ratio of the first thickness and second thickness is selected to provide a desired magnetostriction;

a magnetoresistance detector, coupled to the magnetic sensor, for detecting an electrical resistance through the magnetic sensor based on magnetic orientations of the first and the second free layers; and

an actuator, coupled to the magnetic sensor, for moving the sensor relative to the medium.

12. The magnetic storage system of claim 11, wherein the first free layer comprises CoFe and the second free layer comprises NiFe.

13. A spin valve sensor, comprising

a bilayer free layer structure, the bilayer free layer structure including a first free layer having a first thickness formed and a second free layer having a second thickness formed over the first free layer, wherein the ratio of the first thickness and second thickness is selected to provide a desired magnetostriction;

a ferromagnetic pinned layer structure having a magnetic moment;

a nonmagnetic conductive separation layer disposed between the free layer structure and the pinned layer structure;

an anti-ferromagnetic pinning layer coupled to the pinned layer structure for pinning the magnetic moment of the pinned layer structure;

hard magnetic thin films in an abutting relationship with the free layer structure on both sides of the free layer structure; and

a seedlayer structure adjacent the pinning layer structure.

14. The spin valve sensor of claim 13, wherein the first free layer comprises CoFe and the second free layer comprises NiFe.

15. A spin valve sensor, comprising

a bilayer free layer structure, the bilayer free layer structure including a first free layer having a first thickness and a second free layer having a second thickness formed over the first free layer, wherein the ratio of the first thickness and second thickness is selected to provide a desired magnetostriction;

a self-pinned layer structure having a magnetic moment;

a nonmagnetic conductive separation layer disposed between the free layer structure and the self-pinned layer structure;

hard magnetic thin films in an abutting relationship with the free layer structure on both sides of the free layer structure; and

a seedlayer structure adjacent the pinning layer structure.

16. The spin valve sensor of claim 15, wherein the first free layer comprises CoFe and the second free layer comprises NiFe.

17. A magnetic sensor, comprising:

means for providing a fixed magnetic orientation;

bilayer means, disposed over the means for providing a fixed magnetic orientation, for sensing a magnetic field, the bilayer means including first and second means for providing a magnetization that is free to rotate, the first means having a first thickness for sensing a magnetic field and second means having a second thickness for sensing a magnetic field;

means for separating the means for providing a pinning field from the bilayer means;

wherein the ratio of the first thickness and second thickness is selected to provide a desired magnetostriction.